Page 3, lines 4-14:

The mechanical resonator magnetometer of the invention comprises an electrically conducting string or an insulating fiber coated with an electrically conducting material wherein the fiber may be light conducting, and means for supporting the string or fiber in tension at two locations. When a current is inserted in the string or fiber and the magnetometer placed in a magnetic field, the resulting Lorentz Force will cause the string or fiber to deflect along multiple axes that can be detected. Tension of the string or fiber can be varied using, e.g., piezo or MEMS elements. Detection of the light conducting fiber embodiment of the invention with high sensitivity and in a compact manner may be had by forming an aperture in the electrically conducting material coating the fiber and detecting the emitted light.

a1

Page 7, lines 29-31, and page 8, lines 1-11:

A third biomedical application allows biological currents in the brain to be detected via the magnetic fields these currents produce. The currents can be those produced by the brain during normal activity or by the evoked response to light flashes or other sensor stimulation. The difficulties involved are the ability to measure the very small magnetic fields produced by the brain currents (significantly smaller than in the case of the heart) and the ability to determine the position and depth of these currents including being able to identify a local current of interest from the general background fields generated by other brain currents. In this respect, the high sensitivity, small size of individual sensors in a string/fiber based array and the ability to bring the sensor close to the skull are potential key advantages since spatial resolution is determined by the smaller of the sensor size and the distance between sensor and current element being measured. Hence a small, sensitive detector able to be placed close to the skull is important.

a2

Page 9, lines 21-30, and page 10, lines 1-2:

- An opening/aperture 42 in the conducting layer coating the fiber is created in the active sensor region. Light 44 escapes through the opening and is then detected using a detector 46 such as a position sensitive lateral cell optical detector, a quad or bi-cell optical detector or a CCD array. In the last case, differences in the response of adjacent pixels are captured to measure temporal variations in the optical intensity gradient of light escaping the fiber. The motion of this intensity profile is a measure of the motion of the fiber and thereby a measure of the magnetic field. This facilitates magnetometer sensor detection since all functional elements are placed in a planar system with no additional external source required. If magnetometer arrays are used to map the distribution of the magnetic field and the distribution of the magnetic field gradient, such measures can be aided by this detection approach.